ACC.14
TCT@ACC-i2 | innovation in intervention

A1493
JACC April 1, 2014
Volume 63, Issue 12

Pulmonary Hypertension and Venous Thrombo-embolic Disease

A RETROSPECTIVE ANALYSIS OF CATHETER-BASED THROMBOLYSIS FOR TREATMENT OF PULMONARY EMBOLISM

Poster Contributions
Hall C
Sunday, March 30, 2014, 9:45 a.m.-10:30 a.m.

Session Title: Pulmonary Hypertension and Pulmonary Thrombo-embolic Disease III
Abstract Category: 23. Pulmonary Hypertension and Pulmonary Thrombo-embolic Disease
Presentation Number: 1188-214

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Background: Catheter-directed, ultrasound-enhanced thrombolysis (CBT) is emerging as a therapeutic option that may reduce complications of submassive and massive pulmonary embolus (PE), although evidence of benefit is limited. To understand the impact of CBT at a single academic center, we retrospectively investigated outcomes in the 18 months before and after initiation of an institution-wide CBT program.

Methods: Patients with PE and evidence for RV dysfunction (RV dilatation, RV dysfunction by echocardiography, elevated natriuretic peptide levels and/or EKG changes) and/or evidence for myocardial necrosis (troponin elevation) who presented between 2010-2013 were identified. Analysis was performed by time period (pre-CBT or CBT era) and, in the CBT era, by treatment strategy (CBT or conventional therapy). The primary outcome was in-hospital major adverse clinical events as a composite of death, recurrent embolism, major bleeding, or stroke. Secondary outcome was ICU length of stay. Outcomes were studied using multivariable models that adjusted for known or suspected predictors of adverse events.

Results: 223 patients presented with PE: 119 in the CBT era, and 34 patients treated by CBT. The overall average age was 56±16 years, 51% were male, central PE was prevalent (59%), 86% had RV dilatation (mean RV/LV ratio of 1.2), 37% had new RV dysfunction, and 26% had myocardial necrosis. Overall, the composite primary endpoint occurred slightly more frequently in the CBT era vs pre-CBT era (21.0% vs 15.4%, p=0.30, estimated OR 1.46) without significant differences in baseline demographics between the two eras. The patients treated with CBT in the CBT era had a slightly lower but not statistically different event rate than those treated medically (18.8% vs. 21.8%, p=0.80, estimated OR 0.83). After adjustment for known or suspected predictors of adverse events, CBT treatment remained insignificant (OR 1.02, 95% CI 0.23 to 4.63, p=0.98). Patients treated in the CBT era had on average an estimated 34% increase in ICU days.

Conclusion: In our study, switching to a CBT strategy did not significantly improve in-hospital outcomes. Catheter based thrombolysis was associated with increased ICU length of stay.